BIYANI GIRLS COLLAGE

B.Sc III Year

Model test paper- 1

Paper 1st Inorganic chemistry

TIME: 3 hours M.M:33

UNIT I

Ques.1 (a) Write the applications of HSAB theory?

(b) LiI hydrolyses easily while LiF does not. Why?

(c) what is symbiosis?expalin with examples. (2+2+2)

OR

Ques.2 (a) explain the Pitzer's theory.

(b) BF_3 is hard acis but BH_3 is a soft acid.

(c) AgI^- is stable but AgF^{-2} is not.

(d) HgO is soluble in HCl but HgS is insoluble. (2+2+2)

UNIT II

Ques.3 (a) $[NiCl_4]^{-2}$ is paramagnetic but $[Ni(CN)_4]$Is diamagnetic.

(b) give limitation of CFT.

(c) Crystal field stabilisation energy .explain it. (2+2+2)

OR

Ques.4(a) Write notes on :

(i) Diamagnetism
(ii) Paramagnetism

(b) Explain the effect of temperature on magnetic moment with figure. (4+2)

UNIT III

Ques.5 (a) Write short notes on Laporte selection rules.

(b) What are LMCT and MLCT transition? Explain

(c) Spectrochemical series. (3+2+2)

OR

Q.6 (a) Draw orgel energy diagram in octahedral field for d^1 and d^9 electronic system.

(b)What is trans effect? How does it influence substitution in square planar complexes?

(4+3)

UNIT IV

Q.7(a) Discuss the nature of M-CO bonding in metal carbonyls and EAN rule.

(b) What is wilkinson's catalyst?what is its use?

(c) Write note on homogeneous hydrogenation. (3+2+2)

OR

Q.8(a) What are sandwich compounds ?

(b) Why is alkyl lithium compound known as super grignard reagent .

How does methyl lithium react with th following:

(i) Dry ice
(ii) $(C_2H_5)_2Zn$
(iii) HCHO (3+2+2)

UNIT-5

Q.9 (a) Discuss the role of Zn in biological systems?

. (b) What are bulk and trace elements? Discuss the importance of Na, K and Cu in biological systems? (2+2+3)

or

Q.10. Write the brief note on the structure and function of metalloprotein and cytochromes in electron transport processes? (4+3)